TRANSMITTAL SLIP	DATE 2/23/82
TO: C/SPD	
ROOM NO.	BUILDING

REMARKS:

~~FYI~~

for ~~Bill~~ E.

Doris

FROM: D/ODP/DDA 2-D-00 HQS.		
ROOM NO.	BUILDING	EXTENSION

FORM NO. 1 FEB 55 241 REPLACES FORM 36-8

STAT

SECRET

ORD 162-82
24 FEB 1982

MEMORANDUM FOR: Director of Data Processing

FROM: Philip K. Eckman
Director of Research and Development

SUBJECT: FY-84 ORD Program in Intelligent Systems

1. We would like to meet with you to discuss ORD's proposed intelligent systems program and at the same time bring you up to date on current information systems research activities. We've attached some background material about the intelligent systems program we plan to submit as part of the 1984 ORD program. Intelligent systems, also known as expert or knowledge-based systems, are designed to emulate the performance of human experts in a given subject area by applying rules of logic to data bases of basic facts. This technology has been successfully applied in several areas such as medicine, chemistry, and geology and is receiving widespread attention throughout Government and industry.

2. In addition to sharing our plans at this meeting, we would like to discuss with you areas where ODP and ORD can work jointly in preparing the Agency to receive and apply this new technology

25X1

Philip K. Eckman

Attachments:
A. Program Plan Summary
B. Article on Expert Systems

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CIA/ORD INTELLIGENT SYSTEMS PROGRAM

ORD is planning to establish a major new program of research and development in the field of intelligent systems. Intelligent systems are "smart" computer programs which can perform logical deductions, solve complex problems, and explain their actions to the systems' users. ORD has been tracking this technology for several years. Recent significant successful applications in universities, government, and industry indicate that this technology has now matured to a level sufficient to warrant a substantial Agency investment. We believe that the techniques of intelligent systems will benefit the Agency through

- Improving the productivity of Agency personnel by performing certain functions which previously required human intervention
- Making computer systems easier to use and understand
- Improving our ability to write and maintain computer programs to perform complex tasks
- Institutionalizing and making more widely available the specific knowledge and expertise of Agency experts in many fields.

In general, intelligent systems technology can help us in the Agency to control the cost of meeting our customers' projected need for more intelligence and better information.

The technology of intelligent systems involves the creation of computerized knowledge bases of factual data, problem-solving heuristics, and logical inferencing mechanisms which are specific to a particular problem domain. Potential Agency applications of this technology include directed search through massive data files, diagnosis of system malfunctions, user-friendly interfaces to complex computer models or networks, image understanding, computer-aided design of micro-electronic circuitry, understanding of natural language text, and many more. The ORD Intelligent Systems Program will investigate both the technology and its application. An important aspect of this program will be the development of an understanding of which aspects of the technology are appropriate for which types of Agency applications.

The primary purpose of the proposed program is to transfer intelligent systems technology to the Agency. In seeking this goal the program has these general objectives:

- To provide continued technical support for initial Agency experimental efforts in developing intelligent systems

- To introduce and demonstrate the value of intelligent systems technology to a wide range of Agency analytical, scientific, and system development functions

- To acquire and develop tools and skills within the Agency to apply intelligent systems to the Agency's information problems.

Hence, the Intelligent Systems Program will concurrently address tool development, actual applications, and understanding the theory behind the intelligent systems/knowledge-based approach.

We believe that widespread use of intelligent systems technology in the Agency is inevitable. However, the cost-effective introduction of this technology to the Agency will require a program of careful experimentation, analysis, and organizational learning regarding the capabilities, characteristics, and use of this type of computer system. The Agency needs to begin now to expand its capacity to absorb this technology and establish in-house expertise and experience in intelligent systems design, development, and use. The proposed program is designed to provide the Agency with the experience we will need as we face the information (and knowledge) processing environment of the Eighties.

Our DDI and DDA counterparts have expressed their interest in the Agency pursuing this technology. We are continuing to work closely with them in the development of this program.

FUNDS:	FY84	FY85	FY86	FY87	FY88
	$1.20M	$1.75M	$2.00M	$1.50M	$1.50M

Additional Staffing Required: +3 positions